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principles in the mind, without which every attempt to modify or alter the composition, must be attended with uncertainty, and too frequently with disappointment.

NO. II.

COLOURED PRINTS IN IMITATION OF
DRAWINGS.

*The LARGE SILVER MEDAL and FIFTEEN GUINEAS
were this session presented to Mr. WM. SAVAGE, Cowley-
street, Westminster, for his improvements in Block
Printing in imitation of Coloured Drawings.*

SIR,

19th January, 1825.

AFTER laying the specimens of imitations of drawings, produced by the common process of letter-press printing, before the Society of Arts, I beg that you will do me the favour to submit to the Committee of Fine Arts, to which they are referred, the following practical observations on the method of printing them, and on the materials employed in the different inks.

Previous to these observations it may, perhaps, be advisable to take a short retrospect of what had been previously done, to show to the committee clearly my views of the grounds on which I presume to come forward as a candidate for a premium ; for although there is no specific class in which I can claim, yet I think the second paragraph in the general notice to candidates gives me a well

founded hope that they will have their merits discussed in a fair and candid manner.

The first attempts avowedly to imitate pen and ink drawings, by means of engraving on wood and printing, appear to have been made at the close of the fifteenth century. It is supposed, that at first only two blocks were used; one to give the outline and the shaded parts, and the other the coloured ground, out of which the lights were cut, to imitate their being put in with white; and this effect was produced when printed on white paper. In a very few years the process was carried further; but these early productions were confined to three or four blocks, printed with different gradations of shade of the same colour, which produced the effect of what is termed *chiaro oscuro*; their general colours were dull ochry yellow, or brown; sometimes they used a grey ink; sometimes a reddish colour, dull blue, and purple.

In many instances they did not engrave an outline, but produced their imitation of a drawing by gradations of tints, the termination of the tint becoming the termination of the subject; and the different depths produced the draperies and shaded parts.

In general, the prints of the early engravers, that I have examined, have more the appearance of being coloured in distemper, than of being washed in with water colours; and in large subjects, the ground is usually broken, the surface of the paper not being completely covered, as if they had been printed on dry paper: in other instances, they appear as if they had been printed in water colours on damp paper, which had caused the colours to run slightly into each other.

Whatever merit there might be in the drawing and engraving, the printing was comparatively much inferior to the productions of the press of Faust and Schoeffer: for there was no great difficulty in making the lights fall nearly where they were wanted; and from the boldness of execution, it was not of material consequence to have great nicety of workmanship.

In the fifteenth, sixteenth, and seventeenth centuries, a number of artists of eminence practised this mode of engraving and printing; but in the eighteenth century the art was not much followed, at least there were few, if any, who studied it as a profession; and I only find the name of John Baptist Jackson, with the addition of John Skippe, Esq. who was an amateur.

The first instance of an attempt to engrave on wood and to print by means of the type press, so as to represent a painting in water colours, appears to be by Jackson, who flourished about 1720 to 1754. There is another by Gubitz of Berlin, who I believe is now living, who has produced some specimens, which I have seen, that reflect great credit on him as an engraver and printer.

I would wish to be understood as making a distinction between *chiaro oscuro* and a painting in water colours; by the latter expression, I mean a representation of some object or objects in their proper or natural colours; so that when I observe there have been only two attempts to produce imitations of paintings in water colours, it must be taken in this sense.

All the prints in colours by Jackson, that I have seen, show a failure; for the oil which he used in the ink has stained not only the paper on which the subject is printed,

but also the adjoining leaves when it has been inserted in a book ; and the specimens in existence remain to show, that the use of oil in coloured printing inks not only changes the colours, but also, by its separating from the colouring matter and spreading, disfigures the paper.

In the course of nearly four hundred years, since we have the first account of the origin of printing, it appears from all we can learn, that there have been only two attempts, besides this, to produce imitations of paintings in water colours by means of this process, one of which failed from the style in which the prints were engraved, as well as from the materials used in the ink.

After this transient sketch I shall proceed to the practical part of printing in colours, and describe the process and the materials by which the specimens were produced.

In selecting a drawing to imitate, it will be found desirable that the tints should be laid on flat, with as little blending into each other as possible.

When this is the case, the trouble both of engraving and printing are considerably lessened, and the copy becomes a much closer imitation of the original, than when the attempt is made with a highly finished subject, where the colours are insensibly shadowed into each other ; which requires many blocks, and great attention in analyzing the drawing, to produce the desired effect.

The first step, in engraving from a drawing of this nature, will be carefully to examine it, for the purpose of ascertaining how many blocks it will require, and what parts of it will come into each. It will then be necessary to determine which part shall come into the first block to be engraved, and this is of consequence, as it will save a

great deal of trouble in the progress of the work ; and materially tend to the accuracy, and to the correct imitation of the drawing.

If the subject has an outline, it ought by all means to be engraved first ; as it will be an easy and faithful guide for all the other parts. This outline may be traced, and burnished on the block in the usual manner ; after it is engraved, an impression must be printed with black ink ; and if the subject be small, it may be burnished on another block, when a tint that is meant to be taken, may be easily and correctly washed in on the block, and thus the whole subject will advance progressively, till it be completed.

If the engraving be large, or even as large as those in the specimens laid before the Society, it will be found difficult to burnish impressions from the first on the succeeding blocks ; the paper, from its size, expanding so much in the operation as to prevent the united impressions fitting each other with precision when they come to be printed ; to remedy this inconvenience, I adopted a plan, which I believe to be new, and which the engravers on wood acknowledge to be the most accurate method of transferring an impression of one block to another : it is, to make ready in the usual way the first engraved block, so as to produce a good impression in every part ; when this is effected, to paste a piece of damp paper by the corners to the tympan sheet, and pull an impression of a full colour ; then to take out the block from which the impression was printed, and substitute in its stead a similar block, prepared for engraving on, turning down the tympan, and placing some sheets of paper on it to cause a very heavy pull—then to pull the bar of the press home, and, on

turning up the tympan, there will be found a reimpresion on the block, more faithful than any burnishing, or even tracing, and sufficiently distinct for the engraver to touch up all the necessary parts. In small subjects this reimpresion will be found very clear and distinct.

If the subject has no outline, I would recommend that the first block engraved should contain all the leading and material parts; for it will be a saving of time, occasionally to engrave on this block a little more than will be wanted to print from it, on account of obtaining the reimpresion as a guide for the subsequent ones; and, after the whole subject is engraved and made accurate, to cut away those parts which are not wanted in the colour or shade of this particular block, and this remark will hold good when there is an outline.

I shall now state the colouring materials that I have used, with a few remarks on their respective qualities, when made into printing inks.

Venetian red makes a smooth ink with little trouble.

Indian red is of a more purplish cast than Venetian red; is difficult to grind smooth, but works well.

Lake is made into ink with facility.

Carmine is a richer colour, and possesses more depth than lake.

Vermilion is a colour that is generally used for red ink; it varies much in its properties and its appearance. To improve its effect, some printers mix with it orange lead, others a little lake, and some few, for particular purposes, a small quantity of carmine; but I have invariably found, in my practice, that adding lake to vermillion destroyed the beauty of both colours, and produced a brick-dust effect. Perhaps the brightest red ink that can be made,

is to take the richest Chinese vermilion, and to add to it a little chromate of lead: but there is one circumstance which contributes much to the beauty of red ink in printing, that is too frequently overlooked or neglected, I mean contrast; and I think I may safely assert, that where a red ink can be introduced so as to come nearly into contact with a good black ink printed of a full colour, it shall look so superior to the same red where it is printed without any other colour on the same paper, as to appear a different composition.

Red lead is inferior to vermilion as a scarlet, but is useful to a certain extent where a duller and paler colour is wanted.

Orange lead is paler and warmer than red lead.

Prussiate of copper is a good brown in oil painting, but I found it very inferior as a printing ink.

Roman ochre is less bright than yellow ochre, but possesses more depth.

Yellow ochre is a good colour in the representation of stone, and is easily ground.

Patent yellow is a colour that possesses little body, and will rarely be found of service.

King's yellow is the colour that was in general use when yellow ink was required, till I introduced chromate of lead, to which it is much inferior, and has also a disagreeable smell.

Chromate of lead is the brightest yellow that I am acquainted with for printing ink, and is particularly easy to grind smooth.

Gamboge may occasionally be used to advantage, but as an ink it does not possess much depth of colour.

Gall-stone and Indian yellow are transparent colours,

and are useful in giving mellow tints where they are wanted.

Burnt terra di sienna is useful where warm yellow or orange is wanted ; also for shading yellows, and giving them depth.

Bistre is very difficult to grind smooth.

Burnt umber, in many instances, will be found serviceable as a brown, and in giving shades to other colours in representing the ground, or where dull colours are used. These two last mentioned articles were much used by Jackson.

Sepia is now much used by artists in lieu of Indian ink, as possessing more richness and depth, and is useful where a fine ink is required that is not of an intense black.

Indigo is a powerful deep blue, but not a bright colour.

Prussian blue is a deep colour, and brighter than indigo ; they both require a good deal of grinding to make a smooth ink.

Light Prussian blue is nearly equal to Antwerp blue, without its greenish tinge.

Antwerp blue is a bright light blue, with a greenish tinge, and makes a smooth ink with very little trouble.

Verdigris makes an ink of a bright green colour.

Indian ink may be used to give the appearance of a drawing made of the same material, but it does not possess sufficient blackness necessary for the deepest parts ; for them good black ink may be used.

Lamp black and ivory black are occasionally necessary ; but in general the best black ink will answer the same purpose.

In addition to this list, I am convinced, by experience, that all colours used in painting may be applied to printing

ink where the tone of any particular colour is required ; but it will be found in practice that every colour will not produce the same tint when printed that it will when used as a water colour.

Having enumerated the colours necessary for producing imitations of drawings, I shall now give some directions for printing in this style, which are the result of my own experiments ; and I wish it to be decidedly understood, that I have not been indebted to any source whatever for any practical information on this subject—the project was entirely my own, and the execution, so far as regards the printing, has been the result of a continued series of experiments, which in many instances were prosecuted for the purpose of overcoming practical difficulties that arose : these difficulties and these experiments frequently elicited new facts, and gave hints for further improvements, which I endeavoured to prosecute.

Jackson published nothing explanatory of the art. The only observations he makes, are—that he had invented a mode of splitting tints ; and that he had discarded the common printing press, as not being suitable for this kind of printing, and invented one on a different construction, that was superior in its operations.

Papillon's work, on Engraving on Wood, contains little or no information that can be serviceable at the present day. He advises the use of the rolling press, in preference to the type press ; and recommends that each copy should be finished before another is commenced ; at the most, he advises not to have more than twenty in progress at the same time, for fear of variations in the paper, from its drying.

An examination of old engravings on wood, printed in

colours was all I had to guide me; for I had not seen Papillon's work till I had arranged the whole of my plan, when most of the drawings were made, and many of them engraved, and did not receive from him one hint in furtherance of my views; for, contrary to both Jackson's opinion and his, I have made use of the common type press, which I have found to answer every purpose; and I think it but justice to state, that the whole of the specimens laid before the Society were printed at a press made by Mr Ruthven, of Edinburgh, which I look upon as a valuable machine.

I have also invariably printed the whole impression from each block before I have proceeded with the continuation, without experiencing any particular variation in the paper, only adopting common precautions to prevent its drying: one of which was, to keep the edges from being too near the fire; and another, to keep the outside wrapper damp.

When wet paper was worked, I found the best method was to interleave it with damp paper, in the same manner that set-off sheets are used in fine work; for when thirteen or fourteen blocks are used, working the paper so many times will make it drier, which alters its dimensions; but when a subject requires only three or four blocks, I should work from five hundred to a thousand impressions, without any other precaution than wetting the outside wrappers at night, and, perhaps, at the dinner hour, without any fear of their getting out of register.

When a subject requires many blocks, or where it is large, four points will be necessary; they keep the paper steadier in its place on the tympan than two, and serve to show any variations that may arise from the shrinking or expansion of the paper.

Sometimes there may occur small parts in a drawing of a different colour from any other part: when this happens it will save a block and the working to introduce these small parts on another block, where they may stand clear of its own tint, and to beat them of their own colour with a small ball.

It would not be practicable to give directions which blocks of a subject should be worked first, and which should succeed each other; for no specific rule would hold good, different subjects requiring the blocks to be worked in different orders. Sometimes, for the purpose of producing the best imitation of a drawing, it will be proper to work the lightest tint first, and proceed gradually to the deepest; at other times, the lightest may come last, and glaze the others; in this case it will, in some measure, take out the indentations, and soften some of the shades into each other, where it is necessary, or advantageous to the general effect.

In commencing a landscape, I should recommend to begin with the sky; as, by avoiding glazing with these light tints, the subjects of the composition will stand more distinct from the back ground than they would otherwise do if these washy tints were printed last. In proceeding to the middle tints, it will be sometimes found advantageous to omit a progressive block, particularly when it covers a large surface, and take the next in order, and perhaps finish with the one that was omitted.

In subjects of natural history, glazing will be frequently found of particular service in softening the tints into each other. This is also the case in fore-grounds of landscapes, and, indeed, wherever sharpness of definition is not required, it will be found advantageous.

In printing washy tints, the ink must be diluted with

varnish to the proper tone, and very little must be used ; the block must be carefully and well beat, without any superfluity of ink ; if there be any, the tint will not be flat, and the ink will be squeezed into the edges of the engraved part, and give the appearance of lines. The pull must also be very strong, so as to have a great pressure on the surface of the block, otherwise there will be inequality in the colour.

Thus proceeding, the ink must be thickened with colour to match the colour required ; and advance progressively to the greatest depths.

In the specimens I sent to the Society, there is an imitation of a pen and ink sketch, with a second block added, to give a tinted coloured ground, with the lights cut out, to represent a sketch on coloured paper with the light put in.

In imitation of slight drawings in sepia, I have sent a specimen with three blocks, and have increased the number in other specimens to eight, for the purpose of showing an attempt to imitate more finished drawings in this manner.

In sculpture, I have sent specimens of a bust and a statue, and also an Etruscan vase : these subjects are from drawings made from some of the finest remains of antiquity in the British museum.

In natural history there is an attempt to represent a flower, an insect, and a quadruped. The flower is not finished so highly as it might have been, but was left in this state, printed on hard-sized paper, purposely to show that, when finished by the hand, the near resemblance this process will produce to drawings, and that water colours may be used on my inks without difficulty.

In the imitation of coloured drawings, I have com-

bined a succession of fourteen blocks; a greater number than ever was used by my predecessors in printing in colours. I had repeatedly been told that the representation of a washy tint and distances could not be produced by this process;—the sky, the water, and the distances, in the coloured landscape will, I think, refute this opinion.

In venturing before the Society of Arts as a candidate for a premium, I certainly advance no pretensions as an inventor; but rest my expectations on having extended the application of the common printing press; on having introduced additional colouring matters for printing ink; and on having introduced a simple varnish*, in its natural state, for the composition of these inks, that does not affect the colours and renders them perfectly easy in their management, nothing more being required than a stone and muller. On my part this is a first attempt to open a path to raise printing to a higher scale than was before thought practicable—that of a closer imitation of works of art, and also of nature—which will, I trust, be carried to a far greater state of perfection, and thus enable the press to decorate its own productions with an elegance and splendour well suited to that art which bestows so many blessings on man.

I am, Sir,

A. Aikin, Esq.

Secretary, &c. &c.

&c. &c. &c.

WILLIAM SAVAGE.

* Balsam of Capivi.